

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1 1 (currently amended): A nanofiber comprising a first polymer and a biological
2 material, wherein said nanofiber has a plurality of nanopores, wherein the biological material is
3 attached to the nanofiber or incorporated into the nanofiber, and wherein the nanofiber is formed
4 from said first polymer.

1 2 (original): The nanofiber of claim 1, wherein said first polymer is a synthetic
2 polymer.

1 3 (original): The nanofiber of claim 1, wherein said first polymer is a naturally
2 occurring polymer.

1 4 (original): The nanofiber of claim 2, wherein said synthetic polymer is a
2 member selected from the group consisting of: poly(ethylene oxide), poly(vinyl alcohol),
3 poly(ethylene naphthalate), polyaniline, polyacrylic acid, polyacrylon nitrile, polystyrene,
4 polymethylmethacrylate, poly(N-isopropylacrylamide), polyvinyl acetate, and derivatives
5 thereof.

1 5 (original): The nanofiber of claim 3, wherein said naturally occurring polymer
2 is a member selected from the group consisting of: polysaccharides, polypeptides, cellulose,
3 poly-L-lactide, cellulose, casein, and derivatives thereof.

1 6 (original): The nanofiber of claim 1, wherein said biological material and said
2 first polymer are present in a ratio of about 1:20 to about 20:1.

1 7 (original): The nanofiber of claim 1, wherein said biological material and said
2 first polymer are present in a ratio of about 1:10 to about 10:1.

1 8 (original): The nanofiber of claim 1, wherein said biological material and said
2 first polymer are present in a ratio of about 1:5 to about 5:1.

1 9 (original): The nanofiber of claim 1, wherein said biological material and said
2 first polymer are present in a ratio of 1:4.

1 10 (original): The nanofiber of claim 1, wherein said biological material is
2 covalently attached to said nanofiber via a linker.

1 11 (currently amended): The nanofiber of claim 10, wherein said linker is a
2 member selected from the group consisting of: polyethylene glycol (PEG), polyacrylic acid
3 (PAA), polyacrylamide (PAM) ~~as non-ionic~~, and dimethylaminoethyl methacrylate (DMAEMA)
4 or combinations thereof.

1 12 (original): The nanofiber of claim 1, wherein said nanofiber is about 50 nm to
2 about 1000 nm in diameter.

1 13 (original): The nanofiber of claim 1, wherein said nanopores are about 5 nm
2 to about 500 nm in diameter.

1 14 (original): The nanofiber of claim 1, wherein said nanopores are about 25 nm
2 to about 100 nm in diameter.

1 15 (original): The nanofiber of claim 1, wherein said nanopores are about 5 nm
2 to about 25 nm in diameter.

1 16 (original): The nanofiber of claim 1, wherein said nanopores are about 10 nm
2 to about 50 nm in diameter.

1 17 (original): The nanofiber of claim 1, wherein said nanofiber is insoluble in an
2 aqueous solution.

1 18 (original): The nanofiber of claim 1, wherein said nanofiber is insoluble in an
2 organic solution.

1 19 (original): The nanofiber of claim 18, wherein said first polymer is
2 crosslinked.

1 20 (currently amended): The nanofiber of claim 1, further comprising a second
2 polymer, wherein the nanofiber is formed from said first and second polymer.

1 21 (original): The nanofiber of claim 20, wherein said first polymer and said
2 second polymer are present in a ratio of about 1:20 to about 20:1.

1 22 (original): The nanofiber of claim 20, wherein said first polymer and said
2 second polymer are present in a ratio of about 1:10 to about 10:1.

1 23 (original): The nanofiber of claim 20, wherein said first polymer and said
2 second polymer are present in a ratio of 4:1.

1 24 (original): The nanofiber of claim 20, wherein said first polymer and said
2 second polymer are present in a ratio of 1:4.

1 25 (original): The nanofiber of claim 20, wherein said first polymer and said
2 second polymer are present in a ratio of 1:1.

1 26 (original): The nanofiber of claim 20, wherein said first polymer is a synthetic
2 organic polymer and said second polymer is a naturally occurring polymer.

1 27 (original): The nanofiber of claim 1, wherein said biological material is a
2 protein.

1 28 (original): The nanofiber of claim 27, wherein said protein is a member
2 selected from the group consisting of: integral membrane proteins, structural proteins,
3 intracellular proteins, and enzymes.

1 29 (currently amended): The nanofiber of claim 26, wherein said synthetic
2 organic polymer is a member selected from the group consisting of: poly(ethylene oxide),
3 poly(vinyl alcohol), poly(ethylene naphthalate), polyaniline, polyacrylic acid, polyacrylon nitrile,
4 ~~polysaccharides, cellulose, poly-L-lactide~~, polystyrene, polymethylmethacrylate, poly(N-
5 isopropylacrylamide), polyvinyl acetate and derivatives thereof, and said naturally occurring
6 polymer is a member selected from the group consisting of: polysaccharides, polypeptides,
7 cellulose, poly-L-lactide, cellulose, casein, and derivatives thereof.

1 30 (original): The nanofiber of claim 28, wherein said protein is an enzyme.

1 31 (original): The nanofiber of claim 30, wherein said enzyme is a member
2 selected from the group consisting of: a lipase, a carbohydrase, a DNase, and a protease.

1 32 (original): A membrane comprising a nanofiber comprising a first polymer
2 and a biological material, wherein said nanofiber has a plurality of nanopores.

1 33 (original): The membrane of claim 32, wherein said membrane is insoluble in
2 an aqueous solution.

1 34 (original): The membrane of claim 32, wherein said membrane is insoluble in
2 an organic solution.

1 35 (original): The membrane of claim 32, wherein said biological material is
2 attached to said membrane via a linker.

1 36 (original): The membrane of claim 35, wherein said linker is PEG.

1 37 (original): The membrane of claim 35, wherein said linker is PAA.

1 38 (original): A fabric comprising a nanofiber comprising a first polymer and a
2 biological material, wherein said nanofiber has a plurality of nanopores.

1 39 (original): The fabric of claim 38, wherein said biological material is attached
2 to said nanofiber via a linker.

1 40 (original): The fabric of claim 38, wherein said linker is PEG.

1 41 (original): The fabric of claim 38, wherein said linker is PAA.

1 42 (currently amended): An insoluble nanofiber comprising a polymer and a
2 biological material, wherein said nanofiber has a plurality of nanopores and is insoluble in an
3 aqueous solution, wherein the biological material is attached to the nanofiber or incorporated into
4 the nanofiber, and wherein the nanofiber is formed from said polymer.

1 43 (currently amended): An insoluble nanofiber comprising a polymer and a
2 biological material, wherein said nanofiber has a plurality of nanopores and is insoluble in an
3 organic solution, wherein the biological material is attached to the nanofiber or incorporated into
4 the nanofiber, and wherein the nanofiber is formed from said polymer.